

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

In re Application of: :

Applicants: Raj Bridgelall : Group Art Unit: Unassigned

Serial No.: Unassigned : Examiner: Unassigned

Filed: December 14, 2001 :

For: AUTOMATIC AND SEAMLESS VERTICAL ROAMING BETWEEN
WIRELESS LOCAL AREA NETWORK (WLAN) AND WIRELESS WIDE
AREA NETWORK (WWAN) WHILE MAINTAINING AN ACTIVE VOICE
OR STREAMING DATA CONNECTION: SYSTEMS, METHODS AND
PROGRAM PRODUCTS

BOX PATENT APPLICATIONS

Commissioner of Patents
Washington, D.C. 20231

PRELIMINARY AMENDMENT

Sir:

Please replace the designated portions of the above-identified application prior to examination in order to correct minor informalities as follows:

IN THE SPECIFICATION:

Page 29, third paragraph, which begins at line 17 and continues to page 20 lines 1-5, replace as follows:

In the case of processes 1200 and 1300 where more than one network is available, an application/user can switch or roam to a specific network based on knowledge of the network physical location. The physical location may be determined by an integrated GPS or Real Time Location System (RTLS). Examples of Real Time Location Systems are those using signal strength, time difference of arrival or angle of arrival estimates and triangulation methods from the very RF signals that constitute the various wireless networks. Other methods of network

location include RFID and Infra-Red emitter location markers. Application Serial No. 09/986,054, filed November 7, 2001, Symbol Docket 1186, entitled “*Three-Dimensional (3-D) Object Locator System, Using an Intuitive Sound Beacon: System and Method of Operation*”, assigned to the same assignee as that of the present invention and fully incorporated herein by reference describes an example of an RTLS system using angle of arrival estimates and triangulation for determining a position of an object.

IN THE CLAIMS:

Please REPLACE claims 13-18 and 20-23 as follows:

13. (Amended) The method of Claims 11 or 12 further comprising:
- (g) initiating transfer of traffic between the mobile station and a remote user via the WWAN to the WLAN when the mobile station enters the WLAN area.
14. (Amended) The method of Claims 11 or 12 further comprising:
- (h) switching a dual mode radio between the WWAN and the WLAN and vice versa as a user travels between the networks.
15. (Amended) The method of Claims 11 or 12 further comprising:
- (i) providing an Explicit Call Transfer (ECT) function for SVR switching between WLAN/WWAN networks when a user roams in the networks.

16. (Amended) The method of Claims 11 or 12 further comprising:
- (j) interleaving WLAN signaling in vacant GSM/GPRS traffic slots.
17. (Amended) The method of Claims 11 or 12 further comprising:
- (k) interleaving WLAN/WWAN voice/data traffic in vacant GSM/GPRS signaling slots.
18. (Amended) The method of Claims 11 or 12 further comprising:
- (l) linking a dual mode radio API with a GSM/GPRS protocol stack and a WLAN IEEE 802.11 protocol stack for SVR between WWAN and WLAN and vice versa.
20. (Amended) The method of Claims 11 or 12 further comprising:
- transform random packet arrival times into uniformly spaced streaming data using a jitter buffer.
21. (Amended) The method of Claims 11 or 12 further comprising:
- maintaining a connection between parties on the WWAN and the WLAN when transferring from WWAN to the WLAN and vice versa.
22. (Amended) A medium, executable in a computer system for automatic and seamless vertical roaming between a wireless local area network (WLAN) and a wireless wide area network (WWAN) while maintaining an active voice or data connection comprising:

- (a) program instructions issuing a command to the WWAN by a mobile station including a dual mode Radio capable of WWAN and WLAN transmission, the command initiating transfer of a voice or data call on the WWAN to a remote party on the WLAN;
- (b) program instructions checking whether or not a gateway is linked to the dual mode Radio for WLAN transmissions while maintaining the call between the remote party and the mobile station;
- (c) program instructions verifying by the dual mode Radio that the caller identification is from a WWAN transmission and signaling the WLAN gateway to accept the call;
- (d) program instructions storing the packets at the mobile station while waiting for the establishment of a WLAN connection;
- (e) program instructions dropping the WWAN transmission for the call by the WWAN network; and
- (f) program instructions connecting the caller via the gateway and releasing the stored packets. to the dual mode Radio for WLAN transmission.

23. (Amended) A medium, executable in a computer system for automatic and seamless vertical roaming between a wireless local area network (WLAN) and a wireless wide area network (WWAN) while maintaining an active voice or data connection comprising:

- [illegible]

[illegible][illegible]

AUTHORIZATION:

The Commissioner is hereby authorized to charge any additional fees which may be required for the timely consideration of this amendment under 37 C.F.R. §§ 1.16 and 1.17, or credit any overpayment to IBM Corporation's Deposit Account No. 13-4503, Order No. 2301-4016.

Respectfully submitted,
MORGAN & FINNEGAN, L.L.P.

Dated: December 14, 2001

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ATTACHMENT A – SHOWING MARK-UP OF CHANGES

Sir:

IN THE SPECIFICATION:

Page 29, third paragraph, which begins at line 17 and continues to page 20 lines 1-5, has been AMENDED as follows:

In the case of processes 1200 and 1300 where more than one network is available, an application/user can switch or roam to a specific network based on knowledge of the network physical location. The physical location may be determined by an integrated GPS or Real Time Location System (RTLS). Examples of Real Time Location Systems are those using signal strength, time difference of arrival or angle of arrival estimates and triangulation methods from the very RF signals that constitute the various wireless networks. Other methods of network location include RFID and Infra-Red emitter location markers. **Application Serial No.**

09/986,054, filed November 7, 2001, Symbol Docket 1186, entitled “*Three-Dimensional (3-D)*

Object Locator System, Using an Intuitive Sound Beacon: System and Method of Operation", assigned to the same assignee as that of the present invention and fully incorporated herein by reference describes an example of an RTLS system using angle of arrival estimates and triangulation for determining a position of an object.

IN THE CLAIMS:

Claims 13-18 and 20-23 have been AMENDED as follows:

13. (AMENDED) The method of Claims 11 **[and] or** 12 further comprising:
- (g) initiating transfer of traffic between the mobile station and a remote user via the WWAN to the WLAN when the mobile station enters the WLAN area.
14. (AMENDED) The method of Claims 11 **[and] or** 12 further comprising:
- (h) switching a dual mode radio between the WWAN and the WLAN and vice versa as a user travels between the networks.
15. (AMENDED) The method of Claims 11 **[and] or** 12 further comprising:
- (i) providing an Explicit Call Transfer (ECT) function for SVR switching between WLAN/WWAN networks when a user roams in the networks.
16. (AMENDED) The method of Claims 11 **[and] or** 12 further comprising:
- (j) interleaving WLAN signaling in vacant GSM/GPRS traffic slots.

17. (AMENDED) The method of Claims 11 **[and]** or 12 further comprising:
- (k) interleaving WLAN/WWAN voice/data traffic in vacant GSM/GPRS signaling slots.
18. (AMENDED) The method of Claims 11 **[and]** or 12 further comprising:
- (l) linking a dual mode radio API with a GSM/GPRS protocol stack and a WLAN IEEE 802.11 protocol stack for SVR between WWAN and WLAN and vice versa.
20. (AMENDED) The method of Claims 11 **[and]** or 12 further comprising:
- transform random packet arrival times into uniformly spaced streaming data using a jitter buffer.
21. (AMENDED) The method of Claims 11 **[and]** or 12 further comprising:
- maintaining a connection between parties on the WWAN and the WLAN when transferring from WWAN to the WLAN and vice versa.

[23] 22. A medium, executable in a computer system for automatic and seamless vertical roaming between a wireless local area network (WLAN) and a wireless wide area network (WWAN) while maintaining an active voice or data connection comprising:

- (a) program instructions issuing a command to the WWAN by a mobile station including a dual mode Radio capable of WWAN and WLAN

transmission, the command initiating transfer of a voice or data call on the WWAN to a remote party on the WLAN;

- (b) program instructions checking whether or not a gateway is linked to the dual mode Radio for WLAN transmissions while maintaining the call between the remote party and the mobile station;
- (c) program instructions verifying by the dual mode Radio that the caller identification is from a WWAN transmission and signaling the WLAN gateway to accept the call;
- (d) program instructions storing the packets at the mobile station while waiting for the establishment of a WLAN connection;
- (e) program instructions dropping the WWAN transmission for the call by the WWAN network; and
- (f) program instructions connecting the caller via the gateway and releasing the stored packets. to the dual mode Radio for WLAN transmission.

[24] 23. A medium, executable in a computer system for automatic and seamless vertical roaming between a wireless local area network (WLAN) and a wireless wide area network (WWAN) while maintaining an active voice or data connection comprising:

- (a) program instructions issuing a command to the gateway by a mobile station including a dual mode Radio capable of WWAN and WLAN transmission, the command initiating transfer of a VoIP call or data communications on the WLAN to a remote party on the WWAN;

- (b) program instructions checking by the WWAN network whether or not the dual mode Radio for WWAN transmissions is registered to the WWAN network while maintaining the call between the remote party and the mobile station;
- (c) program instructions verifying by the dual mode Radio that the caller identification is from a WLAN transmission and signaling the WWAN network to accept the call;
- (d) program instructions storing the packets at the mobile station while waiting for the establishment of the WWAN connection;
- (e) program instructions dropping the WLAN transmission for the call by the WLAN network; and
- (f) program instructions connecting the caller to the mobile station via the WWAN network and releasing the stored packets to the dual mode Radio for WWAN transmissions.